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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/725,496	11/30/2000	Masayoshi Koike	PM 275294 FOO-212-US	8880
21254	7590	12/01/2004	EXAMINER	
MCGINN & GIBB, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			CRANE, SARA W	
			ART UNIT	PAPER NUMBER
			2811	

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/725,496

Applicant(s)

KOIKE ET AL.

Examiner

Sara W. Crane

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 5, 7, 11 and 13-43 is/are pending in the application.
- 4a) Of the above claim(s) 7, 8, 13, 14, 16, 18, 20, 23, 26, 31 and 34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5, 9, 11, 15, 17, 19, 21, 22, 24, 25, 27-30, 32, 33 and 35-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-2, 5, 9, 11, 15, 17, 19, 21, 22, 24, 25, 27-30, 32, 33, and 35-43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The amendment to the independent claims specifying $x < 1$ as the upper limit on the range for x (rather than $x = 1$) is not taught or suggested by the specification. One therefore cannot determine what is the upper limit for x . Would any value of x , arbitrarily close to 1, be encompassed? (How would this be different, or distinguishable, from $x = 1$?) Or does the designation of " <1 " mean that x must be measurably less than 1, as determined by some known laboratory measurement technique? (What measurement technique?) Or must x be significantly less than 1 (a few per cent maybe), to achieve some desired property? (What property?)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 5, 9, 11, 15, 17, 19, 21, 22, 24, 25, 27-30, 32, 33, and 35-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pankove, 4, 862,471, Goetz et al., 6,441,393, Koike et al., 5,945,689, and Major et al., 6,100,546.

See reasons of record. As noted in the Office action of 17 June 2004, the MQW structure is taught in the first three references, and all of the references address the specific class of materials recited. With respect to the newly-added limitation of $x < 1$, rather than $x = 1$ in the independent claims, a tiny amount of aluminum would be present in any of the semiconductor layers in the prior art devices, whenever aluminum is used as an electrode material, or whenever aluminum appears in other layers of the device, because some interdiffusion will take place. (Aluminum would have been obvious as an electrode material, because most wiring layers in the semiconductor art are of aluminum, because of its high electrical conductivity and ease of fabrication.) Because one cannot determine how close to 1 the upper limit on the range of x would be, examiner assumes that any aluminum at all would satisfy the claim limitation, so this claim limitation would not distinguish over the prior art.

Conclusion

Applicant's arguments of 17 September 2004 have been considered, but are not convincing. Applicant argues that prima facie obviousness cannot be shown by combining the teachings of four references. Examiner disagrees. One of ordinary skill would have read and understood hundreds of teachings in order to acquire such skill, so four references would be a small number of teachings. The references are relied

upon for the specific teachings set forth in the previous Office action, where line and column numbers are given for the evidence in each reference relied upon. The amount of evidence identified is discussed in two pages of the Office action, not a burdensome amount of material to consider, and the teachings are largely cumulative anyway.

Applicant argues that Major et al. does not teach an active layer having MQW structure. Major et al. does not specify what structure the active layer is to have, noting that the choice of material is determined by the desired color of light output. The MQW layer structure for the purpose of light emission is taught in the other references. Also, Applicant notes that the specific limitation on x (of $x < 1$) is not taught by the Major et al. reference, for example. This specific limitation is not taught in Applicant's specification either, and the diagram of Major et al. figure 2 teaches the entire range of x , from zero to 1. This would encompass the range of Applicant's claims.

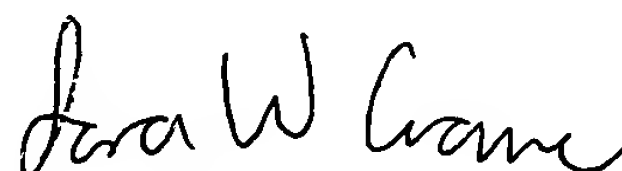
THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Crane, whose telephone number is (571) 272-1652.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist, whose telephone number is (571) 272-1562.

A handwritten signature in black ink, appearing to read "Sara W. Crane". The signature is fluid and cursive, with the first name "Sara" and last name "Crane" being clearly distinguishable.

Sara W. Crane
Primary Examiner
Art Unit 2811